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IBM Technical Disclosure Bulletins

Term: L6 same (pyruvic acid)

Display: 50 **Documents in Display Format:** - **Starting wit**
Number 1

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Search | Clear | Help | Logout | Interrupt

Main Menu | Show S Numbers | Edit S Numbers | Preferences | Cases

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DATE: Wednesday, June 19, 2002 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L7	L6 same (pyruvic acid)	11	L7
L6	L3 same (synthes$$$$$ or biosynthes$$$$$)	577	L6
L5	L3 and (synthes$$$$$ or biosynthes$$$$$)	2147	L5
L4	L3 and (pyruvate or pyruvic acid)	354	L4
L3	(sialic acid) or (NANA) or (N-acetylneuraminic acid)	4418	L3
DB=DWPI; PLUR=YES; OP=ADJ			
L2	(sialic accd) or (NANA) or (N-acetylneuraminic acid)	245	L2
L1	(sialic aicd) or (NANA) or (N-acetylneuraminic acid)	245	L1

END OF SEARCH HISTORY

L7: Entry 1 of 11 File: USPT Mar 12, 2002

DOCUMENT-IDENTIFIER: US 6355453 B1
TITLE: Method for making fluorinated sugars having a side chain and use thereof

Brief Summary Paragraph Right (11):
The biosynthesis of Neu5Ac is enzyme-catalyzed and would appear to provide a model for a quick synthesis. In the biosynthesis, ManNAc is reacted with the pyruvate (pyruvic acid, CH.sub.3 --CO--COOH), and the enzyme catalyst is N-acetylneuraminic acid aldolase. N-acetylneuraminic acid aldolase EC 4.1.3.3 can be found in animal tissue and some bacteria. This enzyme has also been produced by biotechnology methods involving common microorganisms such as E. coli. The natural sialic acid Neu5Ac has been made successfully by enzymatic synthesis, but the preparation of Neu5Ac derivatives (particularly Neu5Ac3F) is more problematic.

L7: Entry 2 of 11 File: USPT Jan 2, 2001

DOCUMENT-IDENTIFIER: US 6168934 B1
TITLE: Oligosaccharide enzyme substrates and inhibitors: methods and compositions

Detailed Description Paragraph Right (201):
Two procedures have been combined to synthesize a sialyl trisaccharide. The enzymatic aldol reaction (cycle B in Scheme 2) was first introduced to the Scheme 1: ManNAc was converted to NeuAc catalyzed by NeuAc aldolase (EC 4.1.3.3) in the presence of pyruvic acid. Although NeuAc aldolase also catalyzes the reverse reaction (NeuAc to ManNAc and pyruvate), the produced NeuAc is irreversibly incorporated into cycle A of Scheme 2 via CMP-NeuAc catalyzed by CMP-sialic acid synthetase coupled with inorganic pyrophosphatase (PPase)-catalyzed decomposition of the released inorganic pyrophosphate. The sialyl LacNAc was obtained in 89 percent yield after a Bio-Gel P-2 column chromatography. The experimental procedure is as follows:

L7: Entry 3 of 11 File: USPT Nov 30, 1999

DOCUMENT-IDENTIFIER: US 5994105 A
TITLE: Epimerase

Brief Summary Paragraph Right (3):
In recent years, N-acetylneuraminic acid is noted as raw materials of drugs. It is known that said N-acetylneuraminic acid may be enzymatically synthesized from N-acetylmannosamine and pyruvic acid using N-acetylneuraminic acid lyase. However, because of expensiveness and difficulty of large-scale preparation of N-acetylmannosamine, a method for preparing N-acetylneuraminic acid by reacting inexpensive N-acetylglucosamine and pyruvic acid in the presence of N-acetylneuraminic acid lyase is proposed (Udo Kragl et al., Angewandte Chemi-International Edition in English, 30, 827-828 (1991)). This method utilizes that acylglucosamine 2-epimerase epimerizes N-acetyl-glucosamine to N-acetylmannosamine. However, acylglucosamine 2-epimerase employed in this method exists only in a trace amount in animal tissues and techniques of large-scale production thereof has not been developed. Accordingly, above-mentioned method may not be employed practically.

L7: Entry 10 of 11 File: USPT Dec 10, 1991

DOCUMENT-IDENTIFIER: US 5071750 A
TITLE: Enzymatic process for preparing N-acetylneuraminic acid

Brief Summary Paragraph Right (4):
The enzymatic synthesis of Neu5Ac from N-acetyl-mannosamine and pyruvic acid (hereinafter abbreviated as ManNAc and Pyr, respectively) has been known since the 1960s (Comb et al., J. Biol. Chem. 235: 2529-2537 (1960)). The enzyme used is N-acetylneuraminic acid pyruvate lyase (E.C. 4.1.3.3), hereinafter referred to as lyase. During this process the following reaction takes place: ##STR1##

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L7: Entry 11 of 11 File: JPAB May 14, 1996

DOCUMENT-IDENTIFIER: JP 08119986 A
TITLE: METHOD FOR PURIFYING SIALIC ACID OR ITS ANALOG

Abstract (2):
CONSTITUTION: A solution containing sialic acid or its analog obtained by synthesizing N-acetylneuraminic acid by condensing N-acetylmannosamine with pyruvic acid in the presence of sialic aldolase is concentrated by using an evaporator. The concentrated solution is mixed with a 2-3C organic aid (e.g. acetic acid) to make its concentration ≥80% (V/V). The concentrated solution is dissolved in a water bath at 50°C while stirring to make the concentration of sialic acid or its analog ≥3% (W/V). The solution is allowed to stand at 4°C to precipitate white crystal of sialic acid or its analog. Then the crystal is filtered to purify a large amount of sialic acid or its analog inexpensively, simply and efficiently.